

New Absorption Peak of Tyrosine

While we were investigating the possible adaptation of the Holiday (1) method for the determination of small amounts of tyrosine in sea water, we observed a hitherto unreported absorption peak of tyrosine. This peak, at 330 $m\mu$, arose when dilute solutions of tyro-

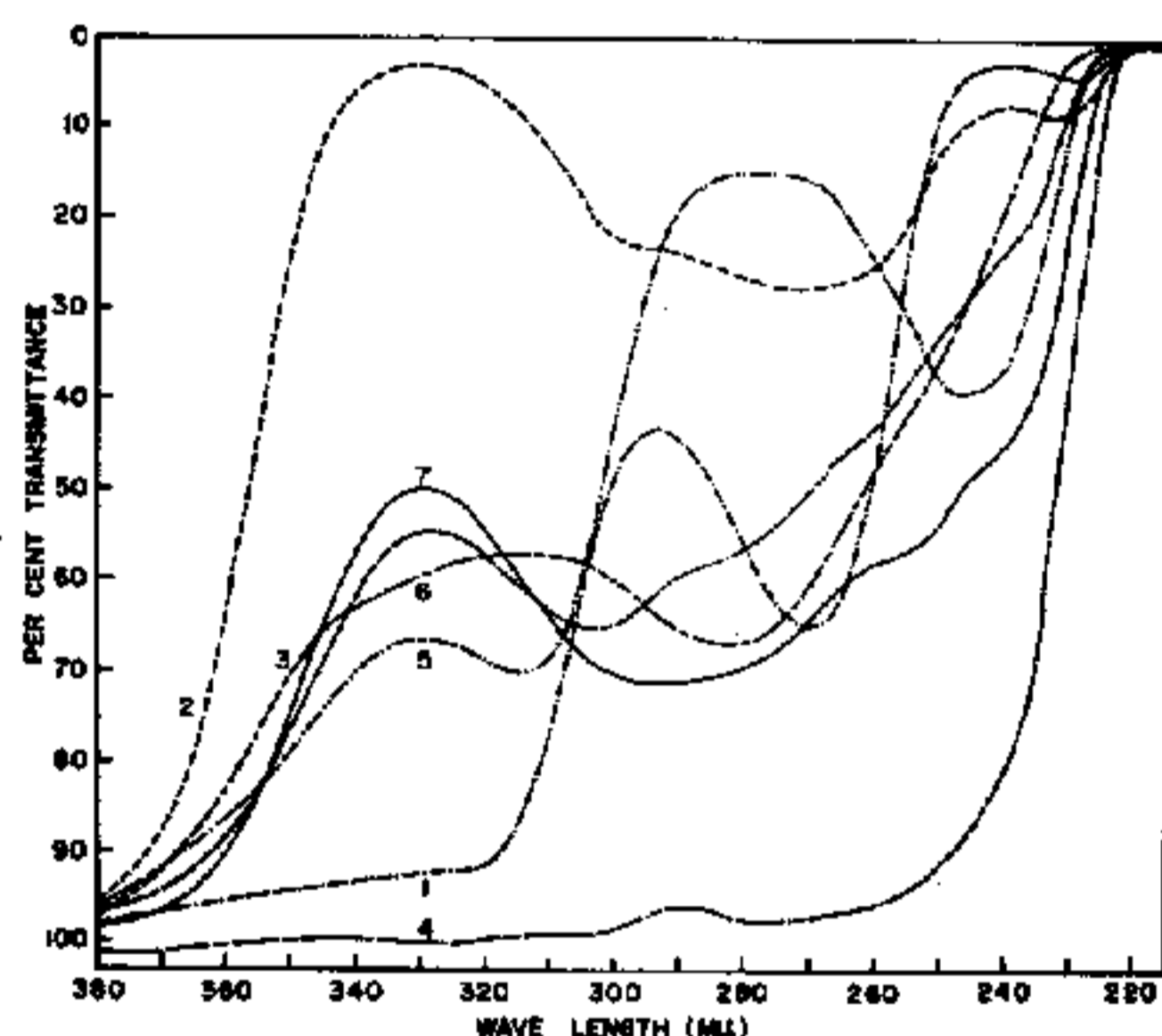


Fig. 1. Absorption peaks of tyrosine: (curve 1) 0.01 g of tyrosine per liter in 0.175N NaOH autoclaved 3 hours at 80 lb/in.²; (curve 2) 0.01 g of tyrosine per liter in 0.175N NaOH; (curve 3) 3,5-diiodotyrosine in 0.125N NaOH autoclaved 4 hours at 80 lb/in.²; (curve 4) plasma albumin in 0.125N NaOH; (curve 5) *p*-hydroxybenzoic acid in 0.125N NaOH autoclaved 4 hours at 80 lb/in.²; (curve 6) plasma albumin in 0.125N NaOH autoclaved 3 hours at 80 lb/in.²; (curve 7) tyramine in 0.125N NaOH autoclaved 4 hours at 80 lb/in.²

sine (1 to 100 mg/lit) in artificial sea water were autoclaved at relatively high pressures (70 to 90 lb/in.²) in the presence of alkali concentrations ranging from 0.12 to 5.0N (Fig. 1, curves 1 and 2).

A similar peak, displaced 10 $m\mu$ toward the ultraviolet, was found when tyrosine solutions were autoclaved either in artificial sea water or in distilled water alone. Tyramine, 3,5-diiodotyrosine, and *p*-hydroxybenzoic acid behaved similarly (Fig. 1, curves 3, 5, 7), while other amino acids tested, including phenylalanine, proline, hydroxyproline, histidine, and tryptophan showed no such spectral change. Both crystalline albumin and plasma albumin solutions produced the same peak at 330 $m\mu$ following autoclaving with alkali (Fig. 1, curves 4 and 6); this is evidently due to the tyrosine content of the protein. The spectral evidence would indicate a structural change, perhaps to an *o*-quinoid structure, common to all the molecules mentioned above, rather than a conversion of the tyrosine to *p*-hydroxybenzoic acid (2).

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References

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